

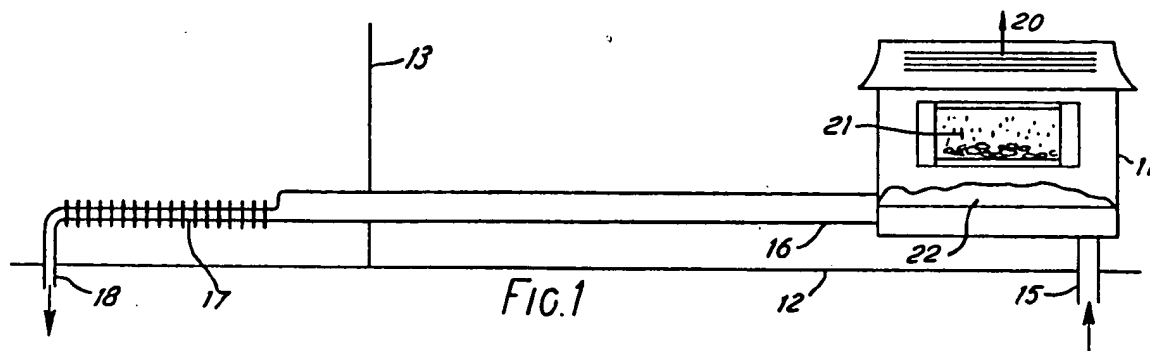
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(54) Gas-fired heating means

(57) A gas fire (11) has an exhaust pipe (16) which leaves the fire horizontally and extends through a wall (13) into another room where it is connected to a radiator (17). An exhaust tube (18) extends from the radiator (17) to a space beneath the floor. The fire has an electrical fan which drives the exhaust gases through the exhaust pipe and radiator. The radiator may be a stainless steel finned tube.



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SPECIFICATION

Gas-fired heating means

5 This invention relates to gas-fired heating means and specifically to means for distributing the heat output from a heating appliance.

The invention provides a gas-fired heating appliance having a fan for assisting the clearance of exhaust gases, an exhaust pipe which extends substantially horizontally from the appliance, said exhaust pipe leading into a radiator separate from and located distant from the appliance, and an exhaust outlet from the radiator.

The radiator may comprise a length of finned tube. Preferably the exhaust pipe is insulated between the appliance and the radiator.

20 The heating means may be used in a caravan or similar small dwelling in which there is an open air space beneath the floor, the exhaust outlet leading into this open air space. The appliance may also have an air inlet from the same open air space but distanced from the exhaust outlet.

Preferably the heating appliance provides a fuel simulation effect, but has the major part of its heat output through convected air.

30 The heating appliance may be adapted for use with bottled gas so that it is independent of main supply.

Specific embodiments are shown in the accompanying drawings:

35 Figure 1 is a diagrammatic view of a gas fire and its exhaust system,

Figure 2 is a detail of a burner and radiant for another gas fire, and

40 Figure 3 is a scrap side section through another gas fire.

Referring first to Figure 1, a gas fire (11) is shown mounted in a caravan having a floor (12) and a partition (13) dividing the caravan into two compartments. For instance, the gas fire may be located in a lounge section of the caravan and the partition (13) may separate the lounge from a bedroom space. The gas fire (11) has a vertically downwards extending combustion air entry pipe (15), which passes down through the floor of the caravan to draw air up from an open space beneath the caravan. The exhaust pipe (16) from the fire leaves the fire horizontally and extends along an inside wall of the caravan into the bedroom space. The pipe (16) comprises a stainless steel flue tube in a separate insulated outer sleeve. Within the bedroom the exhaust gases pass into a radiator section (17) which comprises a length of finned tube exposed to the atmosphere. The exhaust system then ends in a down-turned pipe (18) which passes through the floor of the caravan and discharges the exhaust gases into the space beneath the caravan. Exhaust (18) is distant from inlet (15) so that the exhaust fumes are not drawn into

the inlet.

The fire has electrical fan means which powers the movement of combustion air and exhaust gases therethrough. The fan means may comprise separate combustion air and exhaust fans or one fan may perform both functions.

The gas fire is of the kind in which the major part of its heat output is carried in a convected air current (20). The fire has, however, a glass panel (21) through which a fuel effect may be viewed, the glass panel being completely closed to enable the air supply to the burner to be fully controlled. The fuel effect may be as described with reference to Figures 2 or 3 hereinafter. In front of the fire another simulation of burning fuel (22) has electrically operated flicker effects to increase the effect. A minor portion of the heat output of the fire is in the form of heat radiated through the glass panel (21).

Since the exhaust (16) is insulated little heat passes from the exhaust gases until they reach the radiator (17) which may be spaced 6 feet or more from the fire. The radiator is designed to radiate a useful amount of heat, e.g. between 0.75 Kw and 1 Kw, into the bedroom space. Thus the single source of the fire is used to spread its heat more evenly over the living spaces of the caravan.

Although the fire is shown as installed in a caravan, it is clear that the invention could be used in any small dwelling. In order that the exhaust should operate safely it is essential that the exhaust gas movement be fan assisted, since natural convection alone would not remove the exhaust fumes through an exhaust system as described.

105 Either inlet (15) or outlet (18) or both could extend horizontally out of the caravan, ending outside the vertical walls of the caravan.

As described above, the glass panel (21) allows a fuel effect to be viewed. This may be as shown in Figure 2, wherein an elongated burner bar (25) has a series of burner openings (26) along its length. Seated over the bar is an elongated inverted U-section radiant member (27) comprised of an open mesh or expanded heat resistant steel. The inverted U seats on the burner at either side of the openings (26) and is spaced from the burner above the openings (26). Thus it extends into the area of flames burning above the burner bar and is heated to glow red. The glass panel (21) is obscured, e.g. is tear drop patterned, so that the view of the radiant member (27) is blurred and is seen as a warm red glow without the details of the mesh being visible.

125 The section of a fire seen in Figure 3 shows another alternative form of fuel effect.

The glass panel (21) extends in front of a plaque type burner (30) on which rests an open box-like fret (32) of expanded or mesh heat resistant steel. In the box are located

pieces (31) of ceramic, nonburning simulations of coal or logs. The flames from burner (30) extend around the simulation fuel making them glow and giving the appearance of burning fuel. To increase the illumination an electric lamp (33) may shine up through the fire.

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CLAIMS

1. Gas-fired heating means comprising a gas-fired heating appliance having a fan for assisting the clearance of exhaust gases, an exhaust pipe which extends substantially horizontally from the appliance in use, a radiator separate from said appliance and in use secured to said exhaust pipe to receive hot exhaust gas therefrom, and an exhaust outlet from the radiator.
2. Gas-fired heating means as claimed in claim 1, wherein said radiator comprises a length of finned tube through which the exhaust gases may pass and over which heated convected air from a space to be heated may pass.
3. Gas-fired heating means as claimed in claim 1 or claim 2, wherein said exhaust pipe includes a heat-insulated section between the heating appliance and the radiator.
4. Gas-fired heating means as claimed in claim 3, wherein said heat-insulated section is 6 feet or more long.
5. Gas-fired heating means as claimed in any of claims 1 to 4, wherein said exhaust outlet in use extends downwardly from the exhaust pipe to beneath a floor of the space being heated.
6. Gas-fired heating means as claimed in any of claims 1 to 5, wherein said heating appliance has a combustion-air entry pipe which extends downwardly to beneath a floor of the space being heated.
7. Gas-fired heating means as claimed in any of claims 1 to 6, wherein said heating appliance provides heat both in the form of convected air and radiant heat, the radiant heat being a minor portion of its total heat output.
8. Gas-fired heating means as claimed in claim 7, having a glass panel front closure, and a fuel simulation behind the glass panel.
9. Gas-fired heating means as claimed in claim 8, wherein said fuel simulation comprises an open mesh of material capable of glowing when hot which extends over a burner bar.
10. Gas-fired heating means as claimed in claim 9, wherein said open mesh is expanded heat resistant steel.
11. Gas-fired heating means as claimed in claim 9 or claim 10, wherein said mesh is of inverted U-section.
12. Gas-fired heating means as claimed in claim 9 or claim 10, wherein said mesh forms an open box in which is located ceramic fuel simulation means.
13. Gas-fired heating means substantially as

described hereinbefore with reference to Figure a or Figure 1 as modified by Figure 2, or Figure 1 as modified by Figure 3 of the accompanying drawings.

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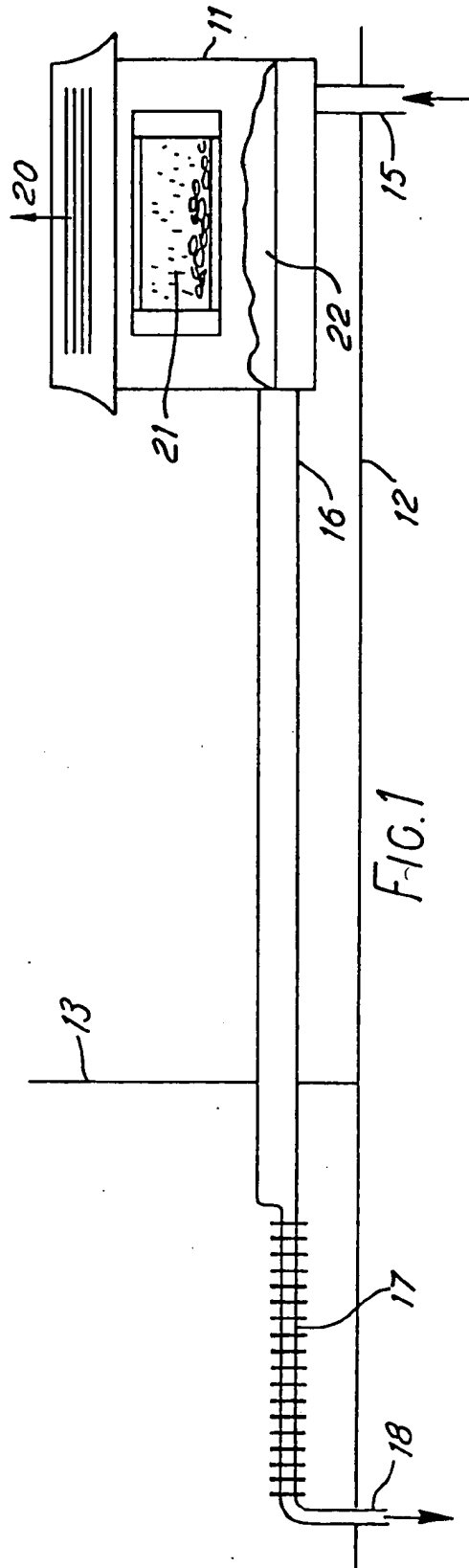


FIG. 1

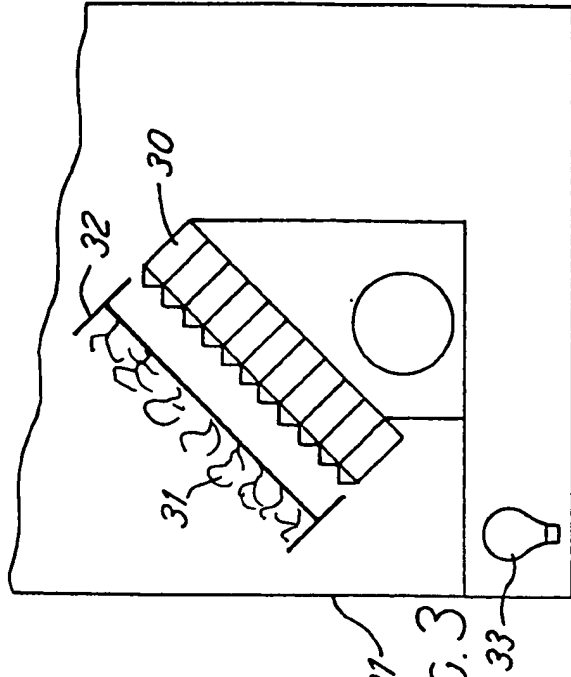


FIG. 3

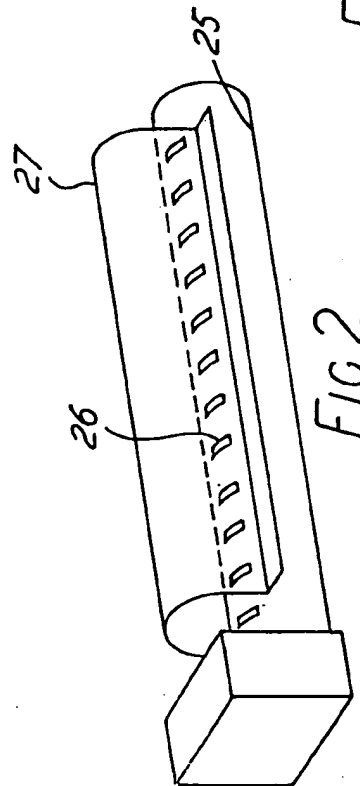


FIG. 2